

Philosophers of Mind

500 – 440	Leucippus	Atomism
470 – 399	Socrates	Substantial Dualism, Affinity Argument
460 – 371	Democritus	Atomism
428 – 384	Plato	Substantial Dualism
384 – 322	Aristotle	Aristotle's philosophy (De anima)
341 – 270	Epicurus	Atomism
97 – 55	Lucretius	Materialist Monism (De rerum natura)
1596 – 1650	Descartes	Substance Dualism, Internalism
1638 – 1715	Malebranche	Occasionalism
1646 – 1716	Leibniz	Interactionism, Parallelism, Pre-established Harmony
1724 – 1804	Kant	“Kritik an der reinen Vernunft”
1806 – 1873	Mill	Epiphenomenalism
1825 – 1895	Huxley	Darwinism, Epiphenomenalism
1838 – 1917	Brentano	Intentionality
1844 – 1900	Nietzsche	Irrtum vom freien Willen
1848 – 1925	Frege	Sense and Reference (token IT)
1878 – 1958	Watson	Behaviorism (methodological)
1885 – 1977	Oppenheim	Deductive-Nomological Model, Semantic Physicalism
1887 – 1971	Broad	Emergentism (synchronic)
1891 – 1970	Carnap	Semantic Physicalism
1900 – 1976	Ryle	Ordinary Language Philosophy, Behaviorism
1905 – 1997	Hempel	Semantic Physicalism
1912 – 1954	Turing	Machine Functionalism
1912 – 1989	Sellars	Emergentism
1916 – 1999	Chisholm	Anti-Physicalism, Mental Content
1917 – 2003	Davidson	Anomalous Monism (token IT)
*1920	Smart	Identity Theory (type)
1924 – 1994	Feyerabend	Dualism
1924 – 2000	Place	Identity Theory
*1926	Putnam	Functionalism
*1929	Frankfurt	Higher-order volition
*1932	Searle	Chinese Room
*1932	Dretske	theological theory of Mental Content
*1934	Kim	Epiphenomenalism, Synchronic Emergentism, Causal Exclusion Argument
*1935	Fodor	Psychological Nativism, Propositional Attitudes, causal theory of Mental Content
*1940	Kripke	Meaning and Necessity (Objection against IT)
*1942	Block	Metaphysical Functionalism
*1942	Dennett	Neural Darwinism, Intentional Stances
*1942	Churchland	Eliminativism
*1943	Jackson	Epiphenomenalism, Qualia (Mary), Knowledge Argument
*1945	Beckermann	Physicalism, Compatibilism
*1946	Singer	Hard Determinism, Utilitarianism
*1946	Burge	Anti-Individualism, Mental Causation
*1952	Levine	Explanatory Gap, Qualia, weak Emergentism

Further contemporaries:

McLaughlin	Fate of Emergentism, Limits of a priori Physicalism
Clark	Mindware, Emergentism as collective self organization, as unprogrammed functionality, as interactive complexity, as uncompressible unfolding
Keil	Libertarian (free will, no determination)

Approaches to Mind

Fundamental Questions:

- § What is a mind?
- § What are the marks of the mental?
- § How do we conceptualize mentality?

Four routes to mentality:

ontological / metaphysical questions

- § what kind of entities do exist?
- § what is the real nature of those entities?
- § what are the relationships between entities of different kinds?
- § do mental entities exert causal powers?
- § is there a relation between the mental and the physical? of what nature is it?

epistemological questions

- § what is knowledge?
- § how to achieve it?
- § can we be sure about it?
- § can I fail in my knowledge about my own (mental) states?

semantic questions

- § what is the meaning of mental states?
- § what do they refer to?
- § how do we learn to use them?

methodological questions

- § what questions can be answered by a certain method?
- § are appropriate methods available
- § methods to study mental phenomena:
 - Introspection
 - Methodological Behaviourism
 - Computational Approach
 - Neuroscientific Approach

Atomism (Leucippus)

- § atoms = neither formable nor destructible, solid, external; made of equal substance
- § ultimate indivisible unit of matter, different size, not able to change each other

Substantial Dualism, Socrates' Affinity Argument

- § soul as principle of life that constitutes the essence of human beings but not bearer of human capacities → animates unanimated body (death = separation of soul and body)
- § Socrates, Plato: soul as 'true self', immortal, bears person's character, bodily distractions cannot be hindrance
- § Platon's Phaedon: last hours of Socrates in prison → problem: guarantee persistence of those features that constitute our personhood

Affinity Argument:

- § soul must be immortal in virtue of its affinity to unchanging and external forms (unchanging, invisible, external ≠ visible, changing, perishable)
- § Simian's Objection: soul needs not outlast body
- § Socrates' Reply: soul controls body, therefore cannot be an attunement
 - rest after dead: soul lives on

Aristotle's philosophy (De anima)

- § humans: capacity of moving and perceiving (shared with animals), reasoning (purely human)
- § there might be features that have nothing to do with the body, i.e. a pure soul (→ physicalist + dialectician)
- § soul is involved in body, body is affected by soul → cannot be without each other
- § active mind for reasoning and intellect (≈ a little functionalistic)

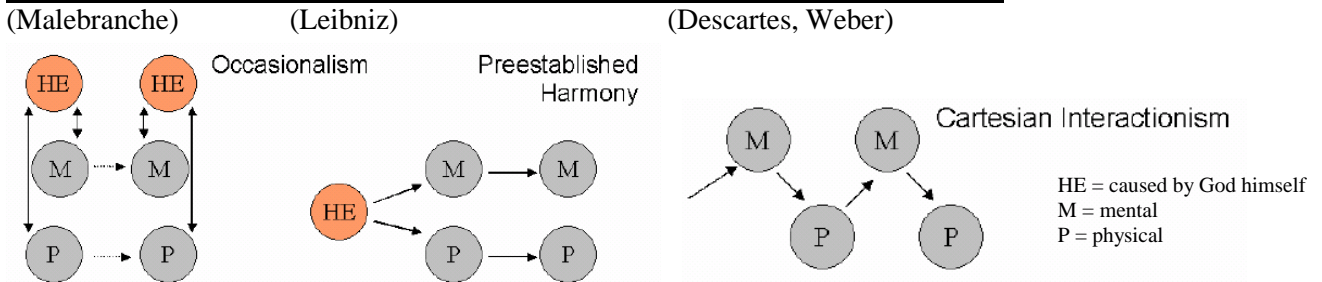
Materialist Monism (Lucretius' De rerum natura)

- § form of physicalism
- § the only thing that can truly be said to exist is matter → only substance
- § mind as part of body, as well as the soul → cannot exist without
- § anima= Seele ≠ animus = Geist
- § mechanistic approach: mind and soul are of corporal nature, phenomena are results of material interactions
 - rest after dead: soul vanishes

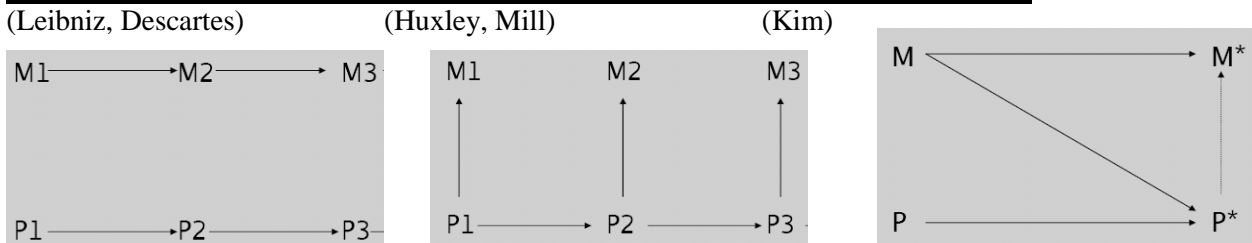
Substance Dualism: Descartes

- § first principle: fundamental disbelief
- § no matter what a deceiver might do, he will not achieve me not believing in my own existence
- § body can be thought apart, but COGITO, SUM!
- § metaphysical argument: what I can clearly and distinctly perceive ... (onthological proof of God)
- § clear idea of body \bar{a} cannot exist apart
- § argument from natural philosophy: humans cannot be machines because their words declare thoughts, act from knowledge (reason as universal instrument) \bar{a} immortal soul must be invoked to explain those human features
 - \bar{e} res extensa \neq res cogitans (= unextended mind)
- § ineractions of soul and body: animal spirits (Lebensgeister) interact with soul (in brain)
- § problem of mental causation: Cartesian Interactionism
- § three options: accept mysteries, give up dualism, give up interactionism \bar{e} parallelism

Occasionalism, Pre-established Harmony, Cartesian Interactionism



Parallelism/ Dualism, Epiphenomenalism, Causal Exclusion Argument



Behaviourism (methodological)

- § correct methodology of scientific psychology should concern with behaviour (= observable, objective)
- § predicting behaviour we need not refer to mental states
- § introspection gives us no knowledge about mind (might be common-sense-access, but is not scientific!)

Semantic Physicalism

- § reaction against all kinds of dualism (“unity of science”)
- § regards philosophical problems as a result of linguistic confusion
 - è talking about sensations, emotions, ... is a shorthand way to talk about actual or potential behavioural patterns
- § Concept of mind (Ryle): content of meaningful psychological statements must be specifiable by statements of publicly observable verification conditions

Identity Theory (type)

- § consciousness = behaviour or disposition to behave in a certain way
- § cognitive concepts (knowing, believing) can be analysed in terms of dispositions to behave
- § no logical rejection for consciousness being a brain process

Objections:

- o Infinity of explication: behaviour matches any conditions but you cannot tell which one is necessary
- o Infinity of Qualifications: definition is only adequate without counter examples
- o Holism of Mental: qualifications entail themselves mental vocabulary à circle (define mental expressions by physical)
- § Physicalist Position: every meaningful mental expression can be identified solely in terms of behavioural or physical expressions
- § Identity Theory (≈ Reductive Physicalism, Materialism): every mental property is identical to some physical property
 - è consciousness being a brain process as a reasonable scientific hypothesis

Conditions for Identities: (B) Putnam)

- (A) being A is being B à has to follow correctly from meaning of the terms A and B
- (B) being A is being B à only philosophically informative if in some sense reductive
- § different types of reduction cannot only be physics
 - è ‘pain is A’ shall be allowed, if A is not synonymous to pain
 - à find any such statement allowed on empirical and methodological grounds

Arguments for Identities (Smart):

- § not only physical processes in man’s tissues but also states of consciousness
 - à sensations left out by physicalist!

Arguments for Identities (Kim):

- § Identification reduces number of entities à enhances ontological simplicity
- § psychoneural identification can be conducive to conceptual or linguistic simplicity
- § law like correlations need no explanation (mental entity ⚡ physical entity)

Sense and Reference (token IT)

- § Frege: equality as relation between objects or signs of objects?

“A difference can only arise if the difference between the signs corresponds to a difference in the mode of presentation of what is designated.” ($a = a \neq a = b$)

Sinn (Gegebenheitsweise) ⚡ Zeichen, Worte -- beziehen sich auf --> Bedeutung, Referenten
(morning star / evening star) (venus)

Functionalism

- § *Putnam*: pain states are rather functional states than brain states
- § realization does not matter (IT: same realization → highly unlikely)
- § solves problems of behaviourism and IT by accepting inner states as mental states
- § ontologically neutral

Types of Functionalism (Block)

- § functional analysis: explanation that relies on decomposition; in terms of capacities, parts, integration

Computation-Representation Functionalism:

- § mental processes as computational processes, brain as a computer
- § psychological processes = computations involving a language of thought

Metaphysical Functionalism (theory of nature of mind)

- § mental states = inner causes of behaviour
- § input clauses: condition → mental state
- § output clauses: mental state → behavioural response
- § interaction clauses: mental state ↔ mental state (dynamically)

Machine Functionalism

- § organism as finite state automaton/ Turing Machine
- § conditionals expressed in a machine table
- § mental states = functional states

Causal-Role Functionalism

- § theory of folk psychology specifies causal roles
- § mental states as bearers or fillers of those roles? (common-sense or psycho functionalism)

Problems for Functionalism

- (1) strange realizations (Block)
 - § Chinese nation: population of China performs as a neural network for an android
→ complex organism (counter intuitive!)
- (2) how to specify inputs and outputs
 - § molecular basis: we cannot ascribe mental states to brains
 - § sensory basis: problems concerning creatures that are not anthropomorphic
 - § environmental relations: circumstances and subjective perception highly involved
→ different causal roles for the same belief
- (3) intentionality and the problem of understanding (Searle)
 - § Chinese Room: without knowledge of meaning someone can manipulate symbols (translate) → might not be recognized as pure symbol manipulation from outside world (equivalent input-output-relation to competent speaker)
 - ⇒ BUT: mentality is more than rule-governed syntactic manipulation
- (4) qualia (inverted spectrum/ absent qualia)
 - § *inverted*: subjective experience – what seems green to me might seem red for you, we name it using the same term because of convention
 - § *absent*: ‘zombies’ behave like we do although they do not have any subjective experience

Eliminativism

Folk Psychology: The way we think about our mental life, make predictions, ...

Feyerabend's dilemma for any identity-statement:

- § mental events have physical features AND mental features
- § combining these implies dualism

Churchland's trouble of Identity Theses:

- § no one-by-one matches between concepts of neuroscience and folk psychology (à misleading)

è main thesis:

- 1) *our common sense conception of mental phenomena constitutes a theory (folk psychology)*
 - § folk psychology is an empirical theory (what we experienced is the basis for our predictions, attributing mind)
 - § introspection might be an illusion
 - § intentionality of mental states = structural feature of folk psychology à bears propositional attitudes (Fodor)
 - § the only way to solve the mind body problem would be completed neuroscience
- 2) *folk psychology is fundamentally defective*
 - § cannot explain mental illness, 3D vision, memory, ... à might not be wrong but is not satisfactory
 - § did not change for thousands of years à will slowly fade away when replaced by better theories
- 3) *it will be displaced by future neuroscience*
 - § central part of current life, vehicle for interpersonal commerce
 - § suffers explanatory failures
 - § others are as good as this theory
 - ✓ **mental concepts (as established by folk psychology) refer to nothing**

Intentionality and Mental Content

§ *phenomenal consciousness*: 'what-is-it-like'-aspect (*qualia*)

§ *intentional consciousness*: 'aboutness'-aspect

§ **Intentionality** = the power of minds to be about, represent, be directed to or stand for things, properties and states of affairs (when we think about something, is there a representation of it in our mind?)

à How can mental states be about something in the real world?

Brentano: intentionality is the essential phenomenon of mind

à what distinguishes mind from other substances?

§ the something we refer to in our mental is connected to the thing it is directed to

à what is the respective intentional object if I have beliefs about things that do not exist?

Chisholm: intentionality cannot be a physical phenomenon

§ current debate: mental content as representational or informational content

à why do our beliefs have a certain content?

§ *Externalism*: content of mental state determined by my relation to environment

à *extrinsic property*: property of an object that I can lose or acquire without changing myself

Hilary Putnam: Twin Earth

§ result: a competent speaker does not need to know the meaning of all expressions of his language

è Sarah and Zwarah have beliefs with different representational content, although they are indistinguishable with regard to all relevant internal properties (*contra functionalism!*)

Burge:

§ the external factor responsible for the difference in mental content has nothing to do with physical or causal/ historical environment of the subject à embedding in linguistic community is essential

è what you believe is not determined by your intentional state

§ *Internalism/ Individualism*: it is something only about myself that determines what my beliefs are about

à *intrinsic property*: property of an object that I can lose or acquire only if I undergo certain changes

Ant-individualism and Mental Causation:

§ from same intrinsic structure we expect the same behaviour

à content of mental states = extrinsic property
(mental content cannot make the difference to behaviour of systems)

§ problem: mental content = extrinsic, behaviour = intrinsic causes **B** how can mental content ever influence our doings?

§ proposal: narrow content, i.e. causal power (Fodor) (not very helpful)

Theories of content (attempts to spell out what mental content physically is):

theological (Dretske, Milikan):

§ mental state is a belief in me with a function shaped by evolution

à what representation represents depends on function of system

§ problem: functional indeterminacy

causal (Fodor):

§ mental states/ beliefs are about the thing that brought them about

§ problem: always disjunctive, no assurance

§ Searle Chinese Room à no intentionality

Emergentism

- § no Reductionism (pure mechanics, IT)
- § no Vitalism (an extra thing that bears life, dualism)
- è it is just our body which brings about the phenomenon 'life' but we cannot explain it reductively
- "the whole is more than the sum of its parts"

emergent phenomena:

- § *PoM*: phenomenal qualities, intentionality, free will
- § *CogSci*: connectionism, artificial life, dynamic systems

Relativistic Emergentism (Hempel, Oppenheim):

- § something can be emergent in relation to something else, but it cannot be in general

Weak Emergentism:

- § physicalist monism: solely physical constituents instantiate dispositions and properties etc.
- § systemic properties: property of the whole system none of its parts has on its own
- § synchronic determination: microstructure determines properties of whole system (arrangement causes behaviour) example: diamond, graphite
- § problems: too many weak emergent properties, cuts nature by one of its joints

Weak Diachronic Emergentism:

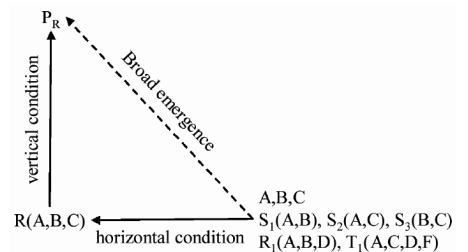
- § weak Emergentism + novelty
- § rise of novel structure is unpredictable (e.g. evolution)
- § existing building block develop new configurations
- § new structure à new entity à new properties

Diachronic Structure Emergentism:

- § unpredictability of structure: rise of novel structure cannot be predicted if formation is governed by laws of deterministic chaos

Synchronic Emergentism:

- § weak Emergentism + irreducibility
- § conditions for reductive explanation:
 - o functional construction/ reconstruction of property
 - o interactions between system's parts fill its properties, construct causal roles
 - o behaviour of whole cannot be predicted by behaviour of its parts (Broad)



Reduction Tasks:

- 1 – provide an explanation for macrostructure's properties via reduction
- 2 – provide an explanation for macrostructures on the basis of knowing the microstructure of a system

è Problem of Phenomenal Qualities:

- (1) can phenomenal qualities be reductively explained?
- (2) reductive explanations afford conceptual reconstruction via their causal role
- (3) phenomenal qualities resist their preparation for reduction

Reasons for Resistance (Levine):

- § our concepts of qualitative character do not represent causal roles à *explanatory gap*
- § there is an element in our concept that is not captured by features of its causal roles, thus it escapes the explanatory net of physicalistic reduction to the extent of its presence è *GAP*
- § New Offers – Mindware: Collective self-organization, Unprogrammed functionality, Interactive complexity, Uncompressible unfolding

Argument for the Explanatory Gap (Levine):

If we want to find an identity statement of the form "a="?" we need

- (1) a functional characterisation F: "a is F" (conceptual, probably a priori)
 - (2) a statement from research: "In our world b is F" (empirical, a posteriori)
- ✓ "a = b" (conclusion)

à we can never make such process work in case of pain, since (1) is never adequate there (leaves out the way pain feels)

problem: the given schema is the only way to arrive at identity statements

Phenomenal Qualities: Epiphenomenalism, Qualia (Mary), Knowledge Argument

Leibniz:

§ perception cannot be explained on mechanical grounds – there must be a specific substance to bring about our experiences

Broad:

§ chemical compounds cannot be deduced to their properties – knowing how ammonia is chemically structured does not tell us anything about the smell

§ secondary qualities (attributed to object in the world) \neq phenomenal qualities (subjective experience)

Feigl's Perfume:

§ could we predict the smell of a perfume knowing its composition? (proposal: Yes, but only based on predictions about its position in the topological space)

○ find neurophysiologic correlates for all known phenomenal states

○ formulate bridge laws that connect neural states with locations of various phenomenal dimensions (odours, sounds, colours)

○ predict from neural correlates locations of novel experiences within the topological space corresponding to the phenomenal dimension

à if it succeeds we are done, phenomenal qualities are reduced to physics

à correlations do not suffice: find reductive explanations!

Locke:

§ inverted spectrum scenario – it might be the case that two people experience the same when seeing completely different colours, how we communicate is just convention

Inverted Qualia:

a boy might be born with a deficit in colour perception (red \leftrightarrow green) but we would not recognize

Absent Qualia:

there might be creatures that do not have qualia at all, but seem exactly like we do à no functionalistic difference

è functionalism cannot hold



180° Hue inversion

Jackson's Mary – The Knowledge Argument:

(1) Mary has all physical information concerning human colour vision before her release from the black and white room

(2) there is some information that she does not have before (the experience)

✓ not all information is physical information (physicalist leaves something out)

Reply: knowing that (science, theory) and knowing how (experience) are different epistemic domains!

A Reductive Explanation? - Successful if

○ property concerned is functionally construable

○ specific role is filled by system's parts + their interactions

○ behaviour of complex system must follow from behaviour of parts in isolation

à problems with Emergentism, explanatory gap remain

§ split brain patients: not the strong kind of reduction we are looking for

§ we can use a tool without understanding how it works

à **Problem of Phenomenal Qualities, Reasons for Resistance** (see page 9) à **Four options:**

i) accept claims (1)-(3) à adopt Emergentist position

ii) accept (1) + (2), deny (3) à provide adequate conceptual reconstructions or qualia to close the gap

iii) accept (1) + (3), deny (2) à explain phenomenal qualities reductively but not via their causal roles

iv) accept (2) + (3), deny (1) à claim: phenomenal qualities can be reduced to physical properties

Papineau:

§ instantiating a neural state n IS having a phenomenal property p (cannot give sufficient explanation)

Pauen:

§ conceptual link between functional and phenomenal properties might be found soon, cognitive processes constitute part of emotional experience

à emotional states have causal roles (but how to switch to the experience that goes with such a state?)

Mental Causation

- § seems obvious that the mental can causally affect the body (pain makes us wince, fear increases heartbeat, ...) – but is it real? and if so, how does it work?
- § *Descartes*: mind and body are distinct, but they interact via pineal gland (Zwirbeldrüse) – problem: if they are distinct there cannot be any overlap
- § *Malebranche & Leibniz*: Parallelism, Occasionalism, Pre-established Harmony (see above)
- § *Huxley*: physical causes bodily behaviour, mind is not reducible to physical → brain causes mind
 - è **Epiphenomenalism**: irreducibility of mind, mind causes nothing, every mental event is cascaded by a physical correlate
 - objection: sometimes feelings cause bodily reactions (problem solved if there are distinct substances)

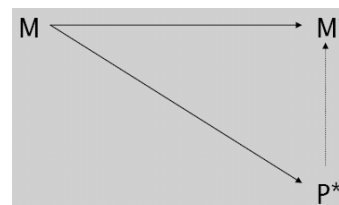
problems:

Argument from Anti-Individualism

- (1) behaviour of system = matter of its intrinsic properties
- (2) content of mental state is extrinsic property
- ✓ content of mental ⇒ difference to behaviour of system

Causal Exclusion Argument (Kim)

- (1) mental to mental causation is only possible if mental to physical causation is possible
 - § suppose there were mental to mental causation, the caused will have a physical supervenience base → two different causes for M*
 - § but still plausible: we have to change our brain to change our mind
- (2) mental to physical causation is impossible
 - § P* must have a physical cause, since it is physical – how does it occur?
 - identity of mental and physical?
 - overdetermination (both are causes, M does not do anything)



- ✓ mental causation is impossible (mental does not cause anything physical)

“If there were physical reasons for all there is, there would be nothing left for mind to be.”

Argument from Anomaly of the Mental (Davidson)

- (1) where ever there are causes and facts there are laws
- (2) there are no physical laws connecting the physical to the mental (psychology: only correlations)
- ✓ no mental causation

Three principles:

- § *Principle of Causal Interaction*: at least some mental events causally interact with physical events
- § *Principle of Nomological Character of Causality*: events related as cause and effect fall under strict causal laws
- § *Principle of Anomalism of the Mental*: there are no strict psychological/psychophysical laws that let us predict or explain mental events
- è incompatible: every two of these can be true only if the third is false

Reply: Anomalous Monism:

- § there are only physical events
- § there are no laws
- § an event can be described in multiple ways (mental and physical descriptions may relate to the same event)
- § difference to IT: we cannot reduce mental types of events to physical types of events → instances might be identical but not types! (one event may cause different states, one belief might be realized differently)
- § causal laws just depend on how I describe the event → it can be both: mental and physical
 - è all three **principles are consistent** (mental event has at least one physical description – pain IS c-fibre firing) è **back to Epiphenomenalism**

Free Action & Free Will

External Constraints:

- § *natural laws*: we cannot freely decide beyond physical laws
- § *political circumstances*: we cannot say what we want under dictatorship without risking life
- § *arbitrary constraints*: sometimes you cannot have both (holiday – good job)

Internal Constraints:

- § *somatic limitations*: colour-vision impairment, disabilities, ...
- § *compulsive actions and obsessions*: we cannot decide to be happy if we are depressed
- § *neural processes and states*: can we decide freely, if our decision making, reasoning, ... is determined by neurons?

Terminology:

- § *cause*: one member or the whole of a set of things that proceeds a certain effect
 - INUS model: [a & b & c] v [d & e] v ... \Rightarrow package = sufficient but not necessary, elements = necessary but not sufficient
- § *determinism*: account of human choices and actions that make them effect of causal sequences;
 - general doctrine**: every event, including human cognition and behaviour, decision and action, is causally determined by an unbroken chain of prior occurrences
 - *soft determinism*: determinism is true; actual freedom = voluntariness
 - *hard determinism*: determinism is true; freedom = origination + voluntariness
- § *indeterminism*: human choices and actions are not caused, i.e. they are not the effects; events in general are not certain effects
- § *origination*: control of subject over choices – indeterminism itself is essential for freedom, but not enough
- § *'free will'*: part of freedom (\approx origination)
- § *freedom*: genus including a number of species
- § *voluntariness*: kind of freedom which is absence of compulsion
- § *compatibleism*: determinism is compatible with the kind of freedom that really concerns us (voluntariness)
- § *incompatibilism*: determinism is logically incompatible with only kind of freedom that concerns us / moral responsibility (\Rightarrow no strict reality claim of either of these)
- § *libertarian*: incompatibilist that takes freedom as a fact and concludes determinism is false

Criteria for free actions and decisions:

- § principle of alternative possibilities – ‘could-have-chosen-otherwise’-condition
- § principle of origination – authorship (agent-dependent choice)
- § principle of intelligibility – rationality (decision based on considerations)

The current Debate:

Compatibilism

- (Beckermann)
- determinism
 - free will



Incompatibilism

Libertarian

- (Keil)
- no determinism
 - free will



Hard Determinism

- (Singer)
- hard determinism
 - no free will

What they have in common:

- § synchronic determination, micro-determination (a neurophysiologic difference seem required for mental differences)
 - \Rightarrow how could then a creature be the author of his decisions?
 - \Rightarrow how could rationality influence mental life if is determined by neural processes?
- § (either not all mental propositions are based on neurons or at least some of them ARE neural processes)
 - \Rightarrow construction of certain properties in terms of causal roles needed \Rightarrow **Epiphenomenalism**

Libertarian:

- § agent has capacity to decide, i.e. under some circumstances agents are sometimes able to do sth. different
- § if this is not an illusion there are states with different outputs \Rightarrow *Emergence of free will*

Determinist:

- § candidates for free actions are just synchronously caused by neural processes
- § problems of subjective feelings remain \Rightarrow *Emergence of feelings*

Compatibilist:

- § synchronous determination (informed decision): same state causes same output but is open to further reasoning
 - \Rightarrow problem transformed into mental causation problem
- § (if considerations are identical to neural processes, do we end up with IT?)

- \Rightarrow metaphysical debate: so far we did not find deterministic processes
- \Rightarrow we have to give weight either to our impressions or to neurophysiology
- \Rightarrow there might be even more factors
- \Rightarrow the free will problem might remain unsolved (there is no reason to reason like Roth)

Believing Animals ?

§ what is man's place in nature? did we just walk down the road some steps further?

§ animals as Intentional Systems (having concepts) (Dennett)

Davidson's Münchhausen-Theory:

§ what is man's place in nature? did we just walk down the road some steps further?

§ we often cannot do better than ascribing intentions and beliefs to animals, but there is NO reason

§ requirements (must be met by genuine beliefs and their bearers):

- each attribution of a propositional attitude produces an intensional¹ context
- only systems that have the concept of belief can have beliefs and other propositional attitudes

è **opacity**: not possible to substitute co-referential terms while guaranteeing the preservation of

§ truth values (when talking about propositional attitudes)

§ intuitions: animals lack concepts of belief à cannot have beliefs

§ but: what about evolutionary appearance of concepts and beliefs (in humans)?

§ **argument**: beliefs are necessary for concepts, ability of discriminating is insufficient (contra behaviourism)

à we lack what there is in between the notions of concept and belief

Marcia Cavell:

§ distinguish discriminatory reactions (cat à mouse runs away) from intentionality

à similar to Davidson's distinction

Collin Allen: Criteria for having concepts

It is justified to attribute the having of the concept X to a system S if S can

- (1) systematically discriminate between Xs and non-Xs
- (2) recognize its own discrimination errors, and
- (3) hereby learn to better discriminate between Xs and non-Xs.

Some examples of animal behaviour:

dim-witted wasps

- § able to recognize own whole
- § orientation
- § no influence on rigid behavioural mechanisms?
- à no beliefs?

nauseous birds

- § avoidance behaviour if tasted poison butterfly
- § also avoids mimicked ones à intentional explanation?
- § argument: no recognition takes place à belief without knowledge
- è intentionality needs no knowledge (Dretske)

no guarantee of intentionality

piping blowers

- § modify behaviour to protect their young/ clutch
- § broken wing display to attract predator
- § display of aggression in contact with cows
- § learning process involved?
- § intentional system with concepts and beliefs?

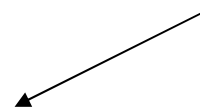
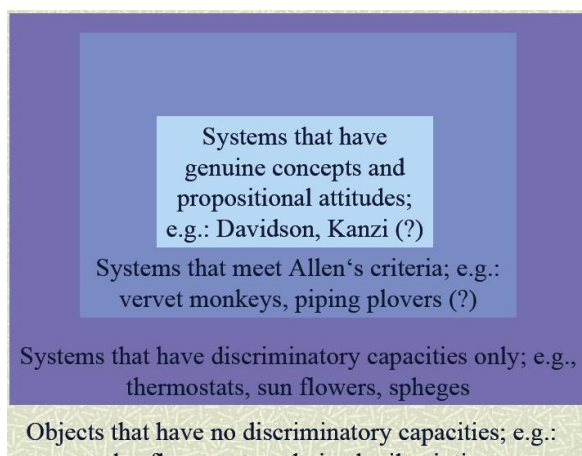
vervet monkeys:

- § distinguish warning calls
- § react selectively to type of call and agent who uttered
- § calls learned from childhood
- à meet Allen's criteria, but we cannot use intentional vocabulary

Kanzi

- § able to make true-false-distinctions
- § can use symbols to communicate, invents new combinations
- à cognitive access (beliefs, desires, intentions)
- à not only human are capable of intentions
- à does he have concepts (intensional context)?

hard to explain without intentionality but what description to use?



¹ extensional: truth value remains unchanged
 x = [[morning star is a planet]] =
 [[evening star is a planet]] = y
 intensional: [[Hans believes x]] ≠ [[Hans believes y]]